Special Issue

Recent Progress in Optical Quantum Information and Communication

Message from the Guest Editors

In recent years, optical quantum technologies have taken a firm step into the spotlight, ushering in breakthroughs across quantum communication, computation, sensing, and networking. In this Special Issue, we explore significant strides in light-source engineering, photonic integration, and nonlinear and linear optics, driving practical applications across:

- Quantum communication: advances in key distribution, entanglement swapping, quantum repeaters, and high-dimensional encoding in fiber, free-space, and underwater channels;
- Quantum networks: milestones such as photonic inter-module entanglement and distributed quantum algorithms;
- Quantum computing and simulation: cutting-edge work in integrated quantum photonics, including chip-based gates and path-/polarization-encoded logic;
- Photonic devices: innovations in photon sources (single- and entangled-photon emitters), high-efficiency detectors (SNSPDs/SPADs), modulators, converters, and memories;
- Quantum sensing/imaging: exploitation of squeezed light, entanglement, and quantum coherence to improve measurement accuracy, resolution, and sensitivity.

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Message from the Editor-in-Chief

You are invited to contribute a research article or a comprehensive review for consideration and publication in *Photonics* (ISSN 2304-6732). *Photonics* is an online open access journal covering both the fundamental and applications of optics and photonics. *Photonics* strives to provide an avenue to allow authors to disseminate their scientific findings—both theoretical/ simulations and experimental works—in highly accessible peer-reviewed journal publications. The manuscript in *Photonics* will be handled with quick turnaround production processing time. We welcome authors to submit their manuscripts for publications in *Photonics*. Our goal in *Photonics* is to enable fast dissemination of high impact works to the scientific community.

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